Wet Direct Seeding

Rice Science for a Better World

rice fact sheets

What is Wet Direct Seeding?

In wet direct seeding, seed is normally pre-germinated prior to broadcasting onto recently drained, well-puddled seedbeds or into pre-standing water in the fields. Wet direct seeding more commonly used in irrigated areas.

Why Use Wet Direct Seeding?

- Easier (less drudgery) and more timely crop establishment
- Reduced labor costs for crop establishment
- Possible savings in water use

How do you wet direct seed?

1. Ensure the field is well leveled, well puddled and weed free
2. Plant the field within 2-5 days after the final puddling. At this point the soil has settled to be solid enough to hold seed on or near the surface and weeds have not yet established. If seed is planted more than 1 cm deep, it will usually have problems emerging.
3. In drained fields, small canalettes can be made across the field a couple of days after puddling to further help drain the field and avoid snail damage and seed emergence problems in areas with standing water.
4. Pre-germinate the seed (soak for 24 hours in water, cover and drain for 24 hours). In this time the seedling root will emerge 2-3 mm. If the seed is left longer it can become entangled making it difficult to separate seed and thus causing damage to the seed when planted.
5. Use sufficient seed - of a variety suited for direct seeding - to achieve a plant population of 100-150 plants/m^2. This will usually require around 80 kg seed/ha. Use an extra 10-20% if the seed is not pre-germinated. Farmers often use more seed (e.g., up to 150-200 kg/ha) because of poor field leveling, poor seed and seed losses to birds and rats).
6. If water in the fields is muddy following the last working, allow the field to dry for a time period of at least 24 hrs (preferably 48 hrs) before broadcasting commences.
7. Sow the seed uniformly: Mark the field in 5 m wide strips (the typical distance over which seed can be uniformly distributed by hand). Divide the seed into uniform lots to allow the person sowing to sow up the field and back (i.e., a 10 m wide strip) before getting the next seed lot. (e.g., the field is 20 m wide, then there will be 4 passes of 5 m each and the seed should be divided into 2 equal size seed lots).
8. Broadcast the seed into 2-5 cm of standing water or onto the drained field. If the field is drained the soil should hold a “v” shape when a stick is run through the mud. This indicates a soil consistency that will prevent seed sinking too deep.
9. Let the water drain before flash flooding after 2-3 days to keep seed moist and to reduce soil crusting (this is especially important in the dry season)
10. If water is drained from the fields after broadcasting, it is re-introduced 10 to 15 days after establishment. In some irrigation areas, seedlings are broadcast post-germination with seedlings 100 to 300 mm in length.

Limitations:

- Good land preparation, leveling and water management are needed for uniform crop establishment.
- Weeds are very serious in dry seeding and serious in wet seeding.
- Snails (in wet seeded fields), and rats and birds can severely reduce plant stands.
- Heavy rainfall at the time of crop establishment can result in crop establishment failure (especially in heavier clay soils), and if water sits over seed still germinating below the soil.
- Longer occupation of main field by 5-15 days, compared to transplanted rice.
- High water and nutrient use in dry seeding (due to high percolation especially on light soils).


Surface broadcast wet seeding


Broadcast seeds on soil surface are more susceptible to bird and rat attack


Drum seeding on surface


Partially submerged seeds can have problems of emerging


Subsurface drum-seeded crop


Drum-seeded crop

For more information:

For an overall view of crop management practices, visit http://www.knowledgebank.irri.org/tropRice.
To diagnose problems in the field visit http://www.knowledgebank.irri.org/ricedoctor.

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